

WHAT IS CLAIMED IS:

1. A method of processing data comprising:  
determining a size of the data to be processed; and  
5 selecting a first processing path if the data size is  
greater than a first size; and  
selecting a second processing path if the data size is  
less than a first size.

10 2. The method of Claim 1, wherein the first processing  
path is used for approximately  $n$ -bit data and the second  
processing path is used for approximately  $(n/2)$ -bit data.

15 3. The method of Claim 2, further comprising operating  
the first processing path and the second processing path in  
parallel.

4. The method of Claim 2, further comprising  
reconfiguring the first processing path to create the second  
20 processing path.

5. The method of Claim 4, further comprising:  
collecting the processed data from the first processing  
path and the second processing path at an output; and

selecting the appropriate data to output.

6. A system comprising:

a bus; and

5 a digital signal processor comprising:

a multiplier having a first structure and a second structure, the first structure processing data up to  $n$ -bits and the second structure processing data up to  $(n/2)$ -bits; and

a data size selector which configures the multiplier into  
10 the first structure when the data is greater than  $(n/2)$ -bits and configures the multiplier into the second structure when the data is  $(n/2)$ -bits or less.

7. The system of Claim 6, wherein the first structure  
15 is a single  $n$ -bit multiplier.

8. The system of Claim 6, wherein the second structure includes two  $(n/2)$ -bit multipliers.

20 9. The system of Claim 6, further comprising a plurality of arithmetic logic units to collect the processed data.

10. The system of Claim 6, further comprising a flop  
which stores the result of the multiplier.

11. The system of Claim 10, further comprising at least  
5 one arithmetic logic unit which adds the result from the  
multiplier to a running total.

12. A method comprising:  
determining a size of data to be processed;  
10 configuring a first processing path for data of n-bits if  
the data size is greater than (n/m)-bits; and  
dividing the first processing path into multiple  
processing paths if the data size is (n/m)-bits or less.

13. The method of Claim 12, further comprising  
15 configuring each of the multiple processing paths for data  
sizes smaller than the first processing path.

14. The method of Claim 12, further comprising dividing  
20 the first processing path into m processing paths.

15. The method of Claim 12, further comprising including  
an n-bit multiplier in the first processing path.

16. The method of Claim 12, further comprising defining  
m=2.